

XXXVI.—Notes on the Palaeozoic Bivalved Entomostraca.—  
No. XXI. On some Silurian Genera and Species\*. By  
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F.G.S.

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IN our continued examination of the numerous interesting specimens in the collections made by Messrs. J. Smith and G. R. Vine we find the following genera and species. The same numbers for the various assortments of Wenlock Shales in Mr. Vine's collection are used as in the Ann. & Mag. Nat. Hist., April 1886, namely:—"Shales over the Wenlock Limestone, nos. 24 and 46. Upper Wenlock Shales, nos. 25, 25\*, 41, and 42: Tickwood Beds. Middle Wenlock Shales, no. 43: Coalbrook-Dale Beds. Lower Wenlock Shales, nos. 22, 36, 37, 38, 40: Buildwas Beds."

STREPULA, gen. nov.

Certain specimens, namely Pl. XIII. figs. 1, 4, 6, 7, 8, and 9, were at first looked upon as belonging to *Kirkbya*, to some forms of which genus (for example fig. 19, pl. iii. Ann. &

\* For No. XX. see Ann. & Mag. Nat. Hist. for April 1886, p. 337.

† These Plates have been drawn with the aid of a grant from the Royal Society for the illustration of Fossil Entomostraca.

Mag. Nat. Hist. ser. 5, vol. xv. p. 189) they assimilate, though they want the usual subcentral pit. *K. rigida*, J. & K., *l. c.* fig. 18, is also such a pitless form, and may belong to the same group as these Silurian allies of *Kirkbya*. *K. fibula* (*op. cit.* ser. 4, vol. iii. pl. xv. fig. 9, p. 224), from the Upper-Ludlow beds near Malvern, holds its own as a species of this genus.

The quasi-Kirkbyan specimens here noticed may be grouped under the new generic name of *STREPULA* \*.

The carapace-valves are slightly convex, suboblong, with rounded ends, or semielliptical, that is, less boldly curved at one end than at the other, and bear narrow often trenchant ridges. These are sometimes concentric with the lower margin, in other cases partly concentric and partly irregular. They run into the slightly thickened dorsal margin. The intervening furrows form broad valleys and a subcentral tubercle, or even a lobular swelling is sometimes present. The chief ridge is a free supramarginal lamina, standing outwards and downwards, and hiding the real marginal edge in the side view. The edge view of the bivalved carapace is narrow-ovate, cross-barred at the sides with ridges, some straight and parallel, some oblique and divergent (Pl. XIII. figs. 8 *b*, 9 *b*).

1. *Strepula concentrica*, sp. nov.

(Pl. XIII. figs. 1 *a*, 1 *b*, 4, 6.)

Proportions† : { Fig. 1: Length 12. Height 7. Thickness 5.  
                           { Fig. 4: Length 19. Height 9.  
                           { Fig. 6: Length 24. Height 11.

Three concentric but not quite symmetrical narrow ridges are here present (including the supramarginal lamina), sometimes showing a tendency to "sport" or branch, and even to have a connecting isthmus here and there. A small central tubercle is seen in fig. 1 *a*.

This species occurs in Mr. Smith's collection:—no. 11<sub>6</sub>, Lincoln Hill, Ironbridge; no. 42, railway-cutting, side of Severn, Ironbridge; and no. 55<sub>3</sub>, Woolhope.

2. *Strepula irregularis*, sp. nov.

(Pl. XIII. figs. 5, 7, 8 *a*, 8 *b*, 9 *a*, 9 *b*, 9 *c*, and 15.)

Proportions : { Fig. 8: L. 20. H. 12. Th. 10.  
                           { Fig. 9: L. 24. H. 12. Th. 10.

\* Diminutive of *Strepa* (Lat.), a stirrup, from the loop-like pattern of the ridges.

† If these proportional numbers be divided by 15, the results will be measurements in a millimetre and parts of a millimetre.

The typical ridging here seems to be (within the supramarginal outstanding ridge) an inner, irregularly concentric, and an innermost, variable, three-limbed ridge, like a curved trident or a distorted  $\mathfrak{W}$ , all thin and some trenchant. A lobular swelling rises within the arms of the tripartite ridge in fig. 7. In all cases the surface is coarsely reticulate. In fig. 8 the supramarginal ridge is so prominent as to be very evident at the sides in the dorsal view (fig. 8 *b*); in fig. 9 it stands out in the ventral view (9 *c*), but not in the dorsal aspect (9 *b*).

Figs. 5 and 15 are interiors of such valves as fig. 7. The reticulate ornament is partly visible through the test in these specimens.

This species occurs in Mr. Smith's collection—no. 11<sub>1,2,5</sub>, and no. 70, Lincoln Hill, Ironbridge; and in Mr. Vine's collection, XLIX, bed no. 25.

The late J. G. O. Linnarsson described and figured an analogous form as *Beyrichia costata* from the *Beyrichia*-limestone of Angelin's stage "Regio Trinucleorum D a (?) " of the Lower Silurian (or Cambrian) of West Gothland. See Kongl. Svenska Vetenskaps-Akad. Handlingar, vol. viii. 1869, p. 85, pl. ii. fig. 67.

3. *Strepula beyrichioides*, sp. nov.  
(Pl. XIII. figs. 2 and 3.)

Proportions : { Fig. 2 : L. 9. H. 5.  
                  { Fig. 3 : L. 16. H. 10.

In fig. 2 we have a small, neat, almost semicircular valve, bearing two concentric ridges—one outstanding, sharp, and above and parallel with the ventral margin, which it hides; the other less regular and not quite entire, within the former. An oval isolated lobe occupies the centre of the valve.

This form comes near to *Strepula concentrica* on one hand, and on the other to some of the varieties of *Beyrichia Klædeni*, especially as one end of the inner ridge is sublobular, faintly imitating the *gigot*-lobe. The outstanding supramarginal ridge, the almost continuous inner ridge formed by the two end lobes, and the isolation of the central lobe, taken altogether, give it a peculiar character.

Fig. 3 shows a larger form, somewhat similar in outline and general aspect to fig. 2. Here the outer or supramarginal ridge is strongly prominent, and two asymmetrical, obliquely transverse, narrow, rough lobes almost meet below an isolated, guttiform, subcentral lobe.

As it is possible that by development in age the small form (fig. 2) might have approximated to the larger form (fig. 3), we associate them together under the name of *Strepula beyrichioides*—in the first place as having reference to their exhibiting the concentric ridging of the new genus *Strepula*, and, secondly, a somewhat trilobate form like some *Beyrichia*.

In both cases (figs. 2 and 3) the dorsal edge view is like that of a three-lobed *Beyrichia*.

*Str. beyrichioides* is rare in the Smith Coll., no. 11<sub>3,4</sub>, Lincoln Hill, Ironbridge; and Vine Coll. LXVI<sub>11</sub>, Tickwood Beds; LXVII<sub>11</sub>, Tickwood Beds.

4. *Bollia* † *Vinei*, sp. nov. (Pl. XIII. fig. 14.)

Proportions :—L. 10. H. 6.

Carapace-valve small, suboblong, with well-curved ventral border; flattish and thick; surface reticulated. The bilobular, semicircular, central ridge is proportionally small, but very distinct. The supramarginal ridge is thick, and the meshes of the reticulate sculpture enlarge along a line just within it, forming there a series of pits. There is a specimen fixed on a piece of shell in the Vine Coll. XXXIV<sub>3</sub>, bed no. 37; also one specimen in the Smith Coll. no. 55<sub>8</sub>, Woolhope.

4\*. *Bollia Vinei*, var. *mitis*, nov. (Pl. XIII. fig. 13.)

Proportions :—L. 11. H. 6.

This little oblong valve is slightly longer in proportion than *B. Vinei*, and the outer of the two curved ridges is within the margin and less pronounced; the sculpture also is weaker and more uniform. There is another specimen in which these features are still less pronounced, but they are essentially the same as in the foregoing *B. Vinei*. Vine Coll. XXXIV<sub>1</sub>, bed no. 37.

Among the small figures of Silurian Entomostraca from Scandinavia in pl. v. illustrating K. Haupt's "Die Fauna des Graptolithen-Gesteines," &c., in vol. liv. of the 'Neues Lausitzisches Magazin' (8vo, Gorlitz, 1878), there are two that look like *Bollia* at first sight, namely figs. 9 *a, b*; but they appear to have a small subcentral lobe low down within the curved ridge. The specimens seem to have been about 2 millim. long. Fig. 11 also in the same plate may possibly illustrate an allied form, but no curved ridge is visible. This

† For *Bollia* see Ann. & Mag. Nat. Hist. for April 1886, p. 360.

specimen may have been about 1.5 millim. long. No descriptions are given, but figs. 9 *a*, *b*, were supposed to be *Beyrichia Klædeni*, and fig. 11 was referred to as a *Beyrichia*, with the two little knobs more to one side than shown by the draughtsman.

PLACENTULA, gen. nov.

*Primitia*, pars, Jones & Holl, Ann. & Mag. Nat. Hist., March 1869, p. 222.

Valves suborbicular, nearly semicircular on the ventral border, straight on the dorsal margin inside, but projecting with unequal and variable angles at the outer dorsal region. Surface flat or slightly convex, surrounded by a raised rim, which slopes down suddenly outside to the edge of the valve. This rim encloses a depressed and reticulated area, and in or near the antero-dorsal region there is a small depression defined by a raised loop-like border. Within certain bounds all these features are variable in different individuals.

The little loop looks like the curved ridge of *Bollia* pushed away out of place, and in some cases is almost obsolete. Though apparently near to the little *Bollia* of figs. 13 and 14, yet this form can scarcely belong to that genus, as the loop touches and runs into the dorsal border; and the general shape is different. We do not now think that it finds its right place in *Primitia*, and prefer to regard it as distinct under the new generic name of PLACENTULA (Lat., a little cake).

5. *Placentula excavata*, Jones and Holl.  
(Pl. XIII. figs. 10 *a*, 10 *b*, 11, 12, and 16.)

*Primitia excavata*, J. & H., Ann. & Mag. Nat. Hist. ser. 4, vol. iii. 1869, p. 222, pl. xv. figs. 10 *a*, *b*, *c*.

Proportions: { Figs. 10, 11, 12: L. 11. H. 7. Th. 5.  
Fig. 16: . . . L. 15. H. 10.  
Original specimen: L. 14. H. 9. Th. 6.

These little bun-shaped carapaces often differ slightly from the specimen first described and figured, the dorsal sulcus being clearly defined by a narrow, raised, slightly oblique loop; and the raised marginal rim is more distinctly marked in several individuals, but not more so in others.

This is a variable species, individuals differing in size, outline, relative convexity, the strength of the loop and of the supramarginal border, and in the intensity of sculpture.

The larger specimen (fig. 16) of an interior has the straight dorsal edge, and shows a swollen dorsal region, as in fig. 11.

This species is not uncommon in bed 25\*, Vine Coll., XXIX; and at Woolhope, Smith Coll. no. 66 and no. 72; also at Lincoln Hill, Ironbridge, no. 70.

6. *Primitia* † *lenticularis*, Jones and Holl.

(Pl. XIV. figs. 1 a, 1 b.)

*Primitia lenticularis*, J. & H., Ann. & Mag. Nat. Hist. ser. 4, vol. iii. 1869, p. 219, woodcuts, figs. 4 a, b, c.

Proportions: { Fig. 1: L. 17. H. 15. Th. 9.  
Spec. fig. in 1869: L. 19. H. 14. Th. 10.

Some specimens closely corresponding in side view and profiles with those described and figured in 1869 occur in the Smith Coll. no. 39, Dudley Castle; no. 58, railway-cutting, side of Severn, Ironbridge; no. 59, Red Shale, Malvern Tunnel; no. 71, Sedgeley (Wenlock Shale): in the Vine Coll. XXXI<sub>1,2</sub>, bed no. 25; XXXIII, bed no. 25\*; and LXVI<sub>6</sub>, Tickwood Beds. Most abundantly in nos. 58 and 59.

7. *Primitia* *Ræmeriana*, Jones and Holl.

*Primitia Ræmeriana*, J. & H., Ann. & Mag. Nat. Hist. ser. 3, vol. xvi. 1865, p. 422, pl. xiii. figs. 8 a, b.

Proportions:—L. 17. H. 13. Th. 5.

This occurs in the Vine Coll. XXXII, bed no. 46; LXV<sub>5,6</sub>, Shale over the Wenlock Limestone; and LVI, bed no. 46.

8. *Primitia* *fabulina*, sp. nov.

(Pl. XIV. figs. 2 a, 2 b.)

Proportions:—L. 15. H. 10. Th. 6.

This is a rather small, bean-shaped, compressed, ovate-oblong *Primitia*, near *P. variolata*, J. & H., in general aspect, but it is much more compressed at the ends, especially anteriorly, and has a smooth surface. The edge view is narrow-ovate, acute at each end.

This is found in some numbers in Smith's Coll. no. 48, Dudley Tunnel; and in Vine Coll., LIV<sub>1</sub> & 4, bed no. 37.

9. *Primitia* *variolata*, Jones and Holl.

*Primitia variolata*, J. & H. Ann. & Mag. Nat. Hist. ser. 3, vol. xvi. 1865, p. 418, pl. xiii. figs. 6 a, b.

Proportions:—L. 11. H. 7·5. Th. 4·5.

† For *Primitia* see Ann. & Mag. Nat. Hist. ser. 3, vol. xvi. 1865, p. 415.



Present in the Smith Coll. no. 36, railway-cutting, side of Severn, Ironbridge; and in Vine Coll. LXV<sub>4</sub> & 11, Shales over the Wenlock Limestone.

10. *Primitia paucipunctata*, Jones and Holl.

(Pl. XIV. figs. 3 *a*, 3 *b*.)

*Primitia variolata*, var. *paucipunctata*, J. & H. *op. cit.* p. 419, pl. xiii. figs. 6 *c*, 6 *d*.

Proportions: { Fig. 3: L. 14. H. 8. Th. 7.  
                  { Figured in 1865: L. 13. H. 8. Th. 5.

We find that perfect specimens do not possess the supposed antero-dorsal rim or marginal extension indicated in fig. 6 *c*, above quoted. The absence of a rim and its more ovate outline, besides its ornament, distinguish it from *P. variolata*, and being constant in occurrence it may fairly claim a specific standing.

It occurs in the Vine Coll. XXII<sub>1,2</sub>, bed 25 (common); XXIII, bed 25\* (not rare); and LXVI<sub>11</sub> & 14, Tickwood Beds.

11. *Primitia humilis*, sp. nov.

(Pl. XIV. figs. 6 *a*, 6 *b*, 9 *a*, 9 *b*, 9 *c*.)

Proportions: { Fig. 6: L. 10. H. 6. Th. 4.  
                  { Fig. 9: L. 14. H. 8. Th. 6.

Valves nearly oblong, but rounded at the ends; not very convex, compressed forward, steep at the edges, but less so anteriorly. Sulcus constricted dorsally, so as to form a rather deep subcentral pit. Dorsal view cuneiform, rounded at the thin end (anterior), and truncate behind. This is not a rare form. Some few specimens show a very faint punctation. Fig. 9 *c* shows an interior, with the dorsal edge and its hinge-line. Figs. 6 *a*, *b*, evidently represent a young form of the same lowly but characteristic species. In the Smith Coll. no. 51, there are two very small individuals from Woolhope. In the Vine Coll. XXV, bed no. 25; XXXVI<sub>4</sub>, bed no. 37; LXIII, bed no. 25; LXIV<sub>4,8,9</sub>, bed no. 37.

12. *Primitia valida*, sp. nov.

(Pl. XIV. figs. 7 *a*, 7 *b*, 7 *c*.)

Proportions:—L. 18. H. 12. Th. 10.

A large, thick, Leperditoid *Primitia*, very convex along the ventral region and at the posterior third; compressed dorsally. Surface finely reticulated, often obscured by weathering. Valves marked with a shallow, broad, subcentral pit. Carapace half as long again as high, and almost as thick as high. Edge view subovate, sharp in front; end view sharp

above, tumid below. Slight marginal rim traceable in some specimens. This is near *P. umbilicata*, but is squarer, thicker ventrally, and always more or less reticulated.

In Smith Coll. no. 69, Woolhope (poor variety); no. 76<sup>(part)</sup>, Lincoln Hill, Ironbridge. Vine Coll. XXVII, bed no. 46 (a variety); XXVIII<sub>1, 2, 3</sub>, bed no. 46; LXV<sub>12</sub>, Shales over the Wenlock Limestone; and LXVII, bed no. 46 (including a variety).

12\*. *Primitia valida*, var. *breviata*, nov.  
(Pl. XIV. figs. 8 a, 8 b.)

Proportions :—L. 13. H. 9. Th. 8.

This agrees with *P. valida* in all respects, except in being smaller and relatively shorter, and not showing the central depression.

Vine Coll. XXVI<sub>1, 2, 3</sub>, bed no. 46; LXV<sub>12</sub> (part), Shales over the Wenlock Limestone.

12\*\*. *Primitia valida*, var. *angustata*, nov.  
(Pl. XIV. figs. 4 a, 4 b.)

Proportions :—L. 14. H. 8. Th. 6.

In this the relative height and thickness of the valves are much less than in the two foregoing forms; otherwise the features are closely similar. The usual depression on the valves is here subcentral, towards the antero-dorsal region, and is more open and undefined.

Vine Coll. XXVIII<sub>4</sub>, bed no. 46; LXV<sub>13</sub> (part), Shales over the Wenlock Limestone.

### 13. *Primitia tersa*, Jones and Holl.

*Primitia tersa*, J. & H., Ann. & Mag. Nat. Hist. ser. 3, vol. xvi. 1865, p. 421, pl. xiii. figs. 3 a, b, c.

Proportions :—L. 14. H. 9. Th. 9.

This occurs at the railway-cutting, side of Severn, Ironbridge, no. 78, Smith Coll., with a quite or nearly smooth surface; but a reticulate variety occurs in no. 78, Dudley Tunnel.

### 14. *Primitia umbilicata*, Jones and Holl.

*Primitia umbilicata*, J. & H. *op. cit.* p. 420, pl. xiii. figs. 2 a-d.

Proportions :—L. 15. H. 11. Th. 9.

This occurs as a reticulated variety in the Smith Collection, no. 73, railway-cutting, side of Severn, Ironbridge, and no. 77,



Dudley Tunnel. In nos. 26 and 78, railway-cutting, side of Severn, Ironbridge, it is smooth. In the Vine Collection LXVI<sub>7</sub> (part), Tickwood Beds, it is also present.

15. *Primitia cristata*, Jones and Holl.

*Primitia cristata*, J. & H. *op. cit.* figs. 1 *a*, *b*, *c*.

Proportions:—L. 15. H. 11·25. Th. 11·5.

This well-marked species is rather abundant in some of the Shales (Tickwood Beds) in Vine Coll. xxx and LXVI<sub>7</sub>, in both cases showing delicate toothings on the front margin of each valve.

16. *Primitia ornata*, sp. nov. (Pl. XIV. fig. 5.)

Proportions:—L. 10. H. 6.

A small, moderately and equally convex, suboblong, Leperditoid form; straight at the back, with a long hinge-line; curved on the free edges; the ventral longest and gently curved; ends nearly semicircular, but the posterior boldest. Surface coarsely reticulated with neat meshes and bordered with a slight rim. Dorsal sulcus median and variable, sometimes ending in a definite central pit, sometimes represented only by a subumbilical hollow.

Though near to *P. variolata*, this is distinguished by its shape, ornament, and small size. The dorsal profile of the carapace is a narrow oblong with rounded ends.

In the Vine Coll. xxiv, bed 25; Smith Coll. nos. 55 and 72, Woolhope, and no. 76 (part), Lincoln Hill, Ironbridge. It is not common.

17. *Primitia cornuta*, sp. nov.

(Pl. XIV. figs. 12 *a*, 12 *b*, and fig. 13 (young).)

Proportions: { Fig. 12: L. 18. H. 10. Th. 7, and between the tips 11.  
Fig. 13: L. 9. H. 6.

Carapace semioval, straight on the back, elliptically curved on the free edges, being semicircular behind, and broadly and obliquely curved on the ventral and anterior margins up to the antero-dorsal angle. Surface finely reticulate, with some meshes larger here and there, forming small pits; convex behind, compressed in front, excepting that the antero-ventral region of each valve bears an outstanding sharp tubercle. Another, but shorter, tubercle projects from each postero-dorsal region. Hence the dorsal view (fig. 12 *b*) gives a bluntly rounded end behind, and a sharp front end, with the lateral

horn-like projections at the anterior third reaching further out than those behind.

The small specimen (fig. 13), though smooth and having the antero-ventral tubercle undeveloped, is sufficiently like the foregoing to be regarded as a young form or an arrested dwarf. This specimen (from bed no. 37?) has been lost.

*P. cornuta* is represented by a unique carapace in the Vine Collection, xxxv, bed no. 40.

We connect this and the two following species with *Primitia*, regarding the tubercles as representing essentially the elevated sides of the modified dorsal furrow.

18. *Primitia aequalis*, sp. nov.

(Pl. XIV. figs. 11 a, 11 b.)

Proportions :—L. 16. H. 9. Th. 5, and between the tips 6.

This is Leperditoid in shape, and like *P. valida*, var. *angustata*, in lateral aspect, but differing in dorsal outline. It has two equal, prominent, rounded tubercles in the middle-dorsal region, almost in a line, marking off thirds of the length, and connected below by a feebly-raised loop-like ridge, curving over the centre of the valve. The dorsal aspect is narrow-ovate, with the four outstanding tubercles symmetrically disposed in fore and aft pairs. The surface is finely reticulated, and the hinge-line delicately denticulate.

Smith Coll., no. 37, railway-cutting, Coalbrook Dale; and no. 38, railway-cutting, side of Severn, Ironbridge. Rare.

This species reminds us of *P. bicornis*, Jones (Ann. & Mag. Nat. Hist. ser. 2, vol. xvi. p. 173, 1855, pl. vi. fig. 23), from the Lower Silurian; but, besides other differences, the proportions of the latter are: L. 18·75. H. 9·25. Th. 9·25. The faint loop, evidently a family link with *Bollia*, *Placentula*, and *Strepula*, serves to show that the centro-dorsal sulcus is not quite obsolete in these cornute *Primitie*. It is more definitely marked in the allied *P. bicornis* and *P. munda*, Jones (*op. cit.* figs. 23, 28–31).

19. *Primitia diversa*, sp. nov.

(Pl. XIV. figs. 10 a, 10 b, 10 c.)

Proportions :—L. 14. H. 7. Th. 6, and between the tips 8.

Valves straight-backed, Leperditoid, and subconvex. Surface finely reticulated or marked with small scattered pits; irregularly undulate, and rising into two unequal tubercles, one near the middle of the front third, the other low down on the hinder third. Dorsal view of the closed carapace narrow-ovate, with lateral, projecting, unequal tubercles.

In the Vine Collection xxxvi<sub>1, 2, 3</sub>, and xxxvii, bed no. 37; also LXIV, Buildwas Beds. Rather common.

20. *Primitia seminulum*, Jones.

(Pl. XIV. figs. 14 *a*, 14 *b*, 14 *c*.)

*Beyrichia seminulum*, Jones, Ann. & Mag. Nat. Hist. ser. 2, vol. xvi. 1855, p. 173, pl. vi. fig. 24.

*Primitia seminulum*, J. & H., *op. cit.* ser. 3, vol. xvi. 1865, p. 418.

Proportions :  $\left\{ \begin{array}{l} \text{Fig. 14 } a, b : \dots L. 17. \quad H. 10. \quad Th. 8. \\ \text{Fig. 14 } c : \dots L. 14. \quad H. 9. \\ \text{Figured in 1855 : } L. 18.75. \quad H. 11.25. \end{array} \right.$

The original description of this pretty little semicircular *Primitia* needs to be supplemented only by the remarks, that the present specimens are clearly and elegantly reticulated; that the dorsal sulcus traverses rather more than a third of the height of the valve and is not always quite straight; and, lastly, that the individuals vary in relative length. Fig. 14 *c* is the outline of a short valve.

Smith Coll. no. 26, railway-cutting, side of Severn, Ironbridge (worn); no. 35, Lincoln Hill, Ironbridge; no. 54, Woolhope; no. 74, Wren's Nest, Dudley; no. 75, Benthall Edge. An abundant species.

21. *Primitia furcata*, sp. nov.

(Pl. XIV. figs. 15 *a*, 15 *b*.)

Proportions :—L. 19. H. 9. Th. 8.

This unique carapace is skiff-shaped, with a straight back and elliptical lower margin, which curves up sharply behind, and much more gently and slopingly to the projecting antero-dorsal angle. The valves are fully convex in the hinder two thirds, but are compressed in front. The surface is smooth, and impressed at the middle of the back with a well-marked sulcus, which widens out into a shallow fork at about the middle of the valve. A neat rim borders the free edge. Dorsal view subovate, acute in front, straight at the sides, and roundly truncate behind. The valves remaining slightly apart in the figured specimen give a slightly deeper outline in fig. 15 *a* at first sight than is real.

Smith Coll. no. 43, Dudley Tunnel.

EXPLANATION OF THE PLATES.

[The figures are magnified about 15 diameters.]

PLATE XIII.

Fig. 1. *Strepula concentrica*, gen. et sp. nov. Carapace: *a*, lateral view, left valve outwards; *b*, dorsal view. Smith Coll. no. 42, railway-cutting, side of Severn, Ironbridge.

Fig. 2. *Strepula beyrichioides*, sp. nov. Right valve. Smith Coll. no. 11<sub>4</sub>, Lincoln Hill, Ironbridge.

Fig. 3. The same. Right valve. Smith Coll. no. 11<sub>3</sub>, Lincoln Hill, Ironbridge.

- Fig. 4. *Strepula concentrica*, sp. nov. Right valve. Smith Coll. no. 11<sub>6</sub>, Lincoln Hill, Ironbridge.
- Fig. 5. *Strepula irregularis*, sp. nov. Interior of right valve. Smith Coll. no. 11<sub>2</sub>, Lincoln Hill, Ironbridge.
- Fig. 6. *Strepula concentrica*, sp. nov. Right valve. Smith Coll. no. 55<sub>3</sub>, Woolhope.
- Fig. 7. *Strepula irregularis*, sp. nov. Left valve. Smith Coll. no. 11<sub>5</sub>, Lincoln Hill, Ironbridge.
- Fig. 8. The same. Carapace: *a*, right valve; *b*, dorsal view. Smith Coll. no. 11<sub>1</sub>, Lincoln Hill, Ironbridge.
- Fig. 9. The same. Carapace: *a*, right valve; *b*, dorsal view; *c*, ventral view. Vine Coll. XLIX, bed 25.
- Fig. 10. *Placentula excavata*, J. & H. Carapace: *a*, left valve; *b*, dorsal view. Vine Coll. XXIX<sub>1</sub>, bed 25\*.
- Fig. 11. The same. Right valve. Vine Coll. XXIX<sub>2</sub>, bed 25\*.
- Fig. 12. The same. Right valve. Vine Coll. XXIX<sub>5</sub>, bed 25\*.
- Fig. 13. *Bollia Vinei*, var. *mitis*, sp. et var. nov. Right valve. Vine Coll. XXXIV<sub>1</sub>, bed 37.
- Fig. 14. *Bollia Vinei*, sp. nov. Left valve. Vine Coll. XXXIV<sub>3</sub>, bed 37.
- Fig. 15. *Strepula irregularis*, sp. nov. Interior of right valve. Smith Coll. no. 70, Lincoln Hill, Ironbridge.
- Fig. 16. *Placentula excavata*, J. & H. Interior of right valve. Smith Coll. no. 66, Woolhope.

## PLATE XIV.

- Fig. 1. *Primitia lenticularis*, J. & H. Carapace (not reticulate): *a*, left valve; *b*, dorsal view. Vine Coll. XXXI<sub>1</sub>, bed 25.
- Fig. 2. *Primitia fabulina*, sp. nov. Carapace: *a*, right valve; *b*, ventral view. Smith Coll. no. 481<sub>2</sub>, Dudley Tunnel.
- Fig. 3. *Primitia paucipunctata*, J. & H. Carapace: *a*, right valve; *b*, ventral view. Vine Coll. XXII<sub>1</sub>, bed 25.
- Fig. 4. *Primitia valida*, var. *angustata*, nov. Carapace: *a*, left valve; *b*, end view. Vine Coll. XXVIII<sub>1</sub>, bed 46.
- Fig. 5. *Primitia ornata*, sp. nov. Right valve. Vine Coll. XXIV, bed 25.
- Fig. 6. *Primitia humilis*, sp. nov. *a*, right valve; *b*, edge view. Vine Coll. XXV, bed 25.
- Fig. 7. *Primitia valida*, sp. nov. Carapace: *a*, left valve; *b*, edge view; *c*, end view. Vine Coll. XXVIII<sub>2</sub>, bed 46.
- Fig. 8. *Primitia valida*, var. *breviata*. Carapace: *a*, right valve; *b*, edge view. Vine Coll. XXVI<sub>3</sub>, bed 46.
- Fig. 9. *Primitia humilis*, sp. nov. *a*, right valve; *b*, edge view of carapace; *c*, interior of left valve, filled with matrix [too convex above]. Vine Coll. LXIII, bed 25.
- Fig. 10. *Primitia diversa*, sp. nov. *a*, right valve; *b*, dorsal view; *c*, ventral view. Different individuals. Vine Coll. XXXVI<sub>1</sub>, 2, 3, bed 37.
- Fig. 11. *Primitia æqualis*, sp. nov. Carapace: *a*, right valve; *b*, dorsal view. Smith Coll. no. 38, railway-cutting, Ironbridge.
- Fig. 12. *Primitia cornuta*, sp. nov. Carapace: *a*, right valve; *b*, dorsal view. Vine Coll. XXXV, bed 40.
- Fig. 13. The same, young. Right valve. Bed 37? (Specimen lost.)
- Fig. 14. *Primitia seminulum*, Jones. Carapace: *a*, left valve; *b*, dorsal view; *c*, outline of a short right valve. Smith Coll. no. 54, Woolhope.
- Fig. 15. *Primitia furcata*, sp. nov. Carapace: *a*, right valve outwards, and edge of left valve partly seen; *b*, dorsal view. Smith Coll. no. 43, Dudley Tunnel.